

**Washington State University Spokane  
Program in Nutrition and Exercise Physiology  
Spring 2016 Course Syllabus**

**Course Logistics**

**Course Title:** Advanced Medical Nutrition Therapy

**Course Number:** NEP 537

**Credits:** (Lecture–Lab–Total): 4 – 0 – 4

**Prerequisite(s):** Accepted into the MS CPD

**Course Communication:**

WSU Spokane uses the Blackboard. If you have not used Blackboard before, please take a few minutes to become familiar with the system prior to the start of the semester.

**How do I access Blackboard?**

1. Go to: <https://learn.wsu.edu/webapps/login/>
2. Log in with your WSU Network ID and Password

**Where can I find more information on Blackboard?**

- Visit [Blackboard Tutorial for Students](#) for additional help.

**Course time and location:** Tues & Thurs: 1630-1800      Room: SAC 241

**Course Objective:**

**Course Description:** This course provides a theoretical and practical base for diet modification & nutritional therapy in health and in a variety of disease states.

**Course Objectives:**

1. Understand the application of nutrition principles to current practice of clinical nutrition in all areas of medical nutrition therapy.
2. Incorporate nutrition into the medical history, review of systems, and physical examination of patients with chronic diseases.
3. Examine available feeding options and their indications for patients with specific diseases and the risks associated with nutritional support in these diseases.
4. Describe the various nutritional assessment tools available to the dietitian for each disease state.
5. Understand the pathophysiology of nutrition-related disease states.
6. After enteral formula review, students will be able to compare and contrast the nutritional content as well as the indications and contraindications of various enteral nutrition products.
7. After review of the literature, students will become familiar with MNT guidelines for critical illness and understand the methodology of evidenced-based research.
8. Students will recognize and apply pharmaceuticals and get a brief understanding of pharmacology and the nutrient-drug interactions for several co-morbidities.

**Instructor of Record:**

Shaekira L. Niehuser, MS, RD, CNSC	Office: IW #314-C Phone: 509-358-7622 Email: <a href="mailto:Shaekira.niehuser@wsu.edu">Shaekira.niehuser@wsu.edu</a> Office Hours: Thursdays 6-7pm or by appointment
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Semester: Spring 2016

**Required and Optional Textbooks, References and other resources****Required Texts:**

- **Nelms M, Long S, Lacey K. Medical Nutrition Therapy: A Case Study Approach 4th Edition, Belmont, CA: Wadsworth Publishing, Belmont, CA. ISBN-13: 978-1-133-59315-7) 2014.**
- **Nelms M, Sucher K, Lacey K, Roth S. Nutrition Therapy and Pathophysiology. Thomson & Wadsworth Publishing, Belmont, CA. 3<sup>rd</sup> edition, 2016 (ISBN-13: 978-1-305-11196-7).**
- **eNCPT(replaces IDNT).** Student subscription is \$25.00. You will also need this for NEP540. Subscription can be purchased at <http://www.eatrightstore.org/product/D49E4C49-728F-4B16-9793-67564ABB04C7>
- **Optional:** Allen AM. Food-Medication Interactions. Tempe, AZ: Ann Moore Allen
- **Optional:** Mueller, CM. A.S.P.E.N Adult Nutrition Support Core Curriculum 2<sup>nd</sup> Edition. 2012. ISBN: 978-1-889622-07-1

**Class Format and Schedule**

Format: Lectures, Case Studies, literature review, analysis & discussion, group discussions, multimedia presentations, practical problem solving in class/lecture.

**NEP 537 Advanced Medical Nutrition Therapy Tentative Topic Schedule**

Date	Topic	Reading and/or Practice Assignment
1/12	Text: <ul style="list-style-type: none"> <li>• Role of the RD in the Health Care System</li> <li>• The Nutrition Care Process</li> </ul> Discussion: <ul style="list-style-type: none"> <li>• Introduction/Syllabus</li> <li>• EAL Assignment</li> <li>• Literature Review Assignment</li> <li>• Evidence-based Practice for RDs</li> </ul>	<p><b>Weekly Quiz #1</b> Chapter 1 &amp;2</p> <p>Assignment:</p> <ul style="list-style-type: none"> <li>• EAL Tutorial &amp; Quiz (Due 1/19)</li> </ul>
1/14	Text: <ul style="list-style-type: none"> <li>• The Nutrition Care Process</li> </ul> Discussion: <ul style="list-style-type: none"> <li>• PES Statements</li> <li>• Lean Tissue Imaging</li> </ul>	<p>Chapter 2-4 eNCPT</p> <p>Journal Article #1 Discussion: Lean Tissue Imaging (JPEN:38:8. Nov 2014:940-953)</p>

1/19	<p>Text:</p> <ul style="list-style-type: none"> <li>• Documentation of the Nutrition Care Process</li> <li>• Malnutrition</li> </ul> <p>Discussion:</p> <ul style="list-style-type: none"> <li>• Malnutrition</li> <li>• NFPA</li> </ul>	<p><b>Weekly Quiz #2</b></p> <p>Nelms Ch. 6</p> <p>NCP: AND/ASPEN Consensus on Malnutrition JPEN: Recognizing Malnutrition in Adults (Jensen Article)</p> <p>Assignments:</p> <ul style="list-style-type: none"> <li>• Case Study 3: Malnutrition w/ Chronic Disease -All Sections (Due 2/4)</li> <li>• Watch Dr. Laura Frank's Lecture on Malnutrition &amp; complete post lecture questions (Due 1/26)</li> </ul>
1/21	<p>Text:</p> <ul style="list-style-type: none"> <li>• Enteral Nutrition Support</li> <li>• NCP: EN in the hospital setting</li> <li>• ASPEN Guidelines</li> </ul> <p>Discussion:</p> <ul style="list-style-type: none"> <li>• Enteral Nutrition</li> <li>• MNT Formulary</li> <li>• ASPEN Guidelines</li> </ul>	<p>Ch. 5 (pg. 88-103)</p> <p>Journal Article Discussion-Group #1 NCP: Enteral Nutrition in the Hospital Setting ASPEN Guidelines</p> <p>Assignment:</p> <ul style="list-style-type: none"> <li>• EN Practice Questions (Due 1/26)</li> </ul>
1/26	<p>Text:</p> <ul style="list-style-type: none"> <li>• Parenteral Nutrition Support</li> </ul> <p>Discussion:</p> <ul style="list-style-type: none"> <li>• Refeeding Syndrome</li> <li>• CH 7: Fluid &amp; Electrolyte Balance</li> </ul>	<p><b>Weekly Quiz #3</b></p> <p>Ch. 5 (pg.103-113)</p> <p>Refeeding Syndrome vs Refeeding Hypophosphatemia (Skipper Article)</p> <p>Assignment:</p> <ul style="list-style-type: none"> <li>• PN Practice Questions (Due 2/2)</li> </ul>
1/28	<p>Text:</p> <ul style="list-style-type: none"> <li>• Fluid &amp; Electrolytes balance</li> </ul>	<p>Ch.7</p> <p>Journal Article Discussion-Group #2</p>
2/2	<p>Text:</p> <ul style="list-style-type: none"> <li>• Acid Base Balance</li> </ul> <p>Discussion:</p> <ul style="list-style-type: none"> <li>• ABGs</li> </ul>	<p><b>Weekly Quiz #4</b></p>
2/4	<p>Discussion:</p> <ul style="list-style-type: none"> <li>• Review of Concepts for Exam #1</li> <li>• Review Case Study # 3</li> </ul>	<p>Journal Article Discussion-Group #3</p>
2/9	<p><b>EXAM 1:</b></p>	<p>No Quiz</p>
2/11	<p>Text:</p> <ul style="list-style-type: none"> <li>• CH 12: Diseases &amp; Disorders of Energy Imbalance</li> </ul> <p>Discussion:</p>	<p>Ch. 12</p> <p>Journal Article Discussion-Group #4 AND Practice Paper: Nutrition Interventions in the Treatment of Eating Disorders</p>

	<ul style="list-style-type: none"> <li>• Obesity</li> <li>• Eating Disorders</li> </ul>	
2/16	Text: <ul style="list-style-type: none"> <li>• CH 20: Diseases and Disorders of the Neurological System</li> </ul> Discussion: <ul style="list-style-type: none"> <li>• CVAs</li> <li>• TBIs</li> </ul>	<p style="text-align: center;"><b>Weekly Quiz #5</b> Ch, 20:</p> Support Line: TBI: Medical, Surgical & Nutritional Considerations (p.3-8) <p>Assignment:</p> <ul style="list-style-type: none"> <li>• Case Study 23: Ischemic Stroke. Sections I-V(Due 2/25)</li> </ul>
2/18	Text: <ul style="list-style-type: none"> <li>• CH 13: Disease of the Cardiovascular System</li> </ul>	<p style="text-align: center;">Journal Article Discussion-Group #5 Ch. 13</p> <p>Assignment:</p> <ul style="list-style-type: none"> <li>• Case Study 4: Hypertension and Cardiovascular Disease. Sections I-IV (Due 2/25)</li> </ul>
2/23	Text: <ul style="list-style-type: none"> <li>• CH 21: Diseases of the Respiratory System</li> </ul>	<p style="text-align: center;"><b>Weekly Quiz #6</b> Ch. 21</p>
2/25	Text: <ul style="list-style-type: none"> <li>• CH 18: Diseases of the Renal System</li> <li>•</li> </ul>	<p style="text-align: center;">Journal Article Discussion-Group #6 Ch.18</p> <p>Assignment:</p> <ul style="list-style-type: none"> <li>• Case Study 18: CKD with Dialysis. Sections: I, III-V(Due 3/3)</li> </ul>
3/1	Text: <ul style="list-style-type: none"> <li>• CH 12: Obesity p 255-278</li> </ul> Discussion: <ul style="list-style-type: none"> <li>• Bariatric Surgery</li> </ul>	<p style="text-align: center;"><b>No Quiz Today</b> <b>Guest Lecture: Dr. Laura Frank</b> NCP: Nutrition Management of the Post Bariatric Surgery Patient Support Line:</p> <p>Assignment:</p> <ul style="list-style-type: none"> <li>• Case Study 2: Bariatric Surgery for Morbid Obesity Sections I-V (Due 3/8)</li> </ul>
3/3	Text: <ul style="list-style-type: none"> <li>• CH 16: Diseases of the Liver, Gallbladder &amp; Exocrine Pancreas</li> </ul> Discussion <ul style="list-style-type: none"> <li>• Alcohol Metabolism &amp; Nutritional Impact</li> <li>• Review Concepts for Exam 2</li> </ul>	<p style="text-align: center;"><b>Weekly Quiz #7</b> Ch. 16</p> NCP: Enteral Nutrition in Chronic Liver Disease Journal Article Group # 7
3/8	<b>EXAM 2</b>	<b>No Quiz</b>
3/10	Text: <ul style="list-style-type: none"> <li>• CH 17: Diseases of the Endocrine System:</li> </ul> Discussion:	<p style="text-align: center;">Ch. 17</p> <p style="text-align: center;">Journal Article Discussion-Group #8</p> <p>Assignment:</p>

	<ul style="list-style-type: none"> <li>Role of the RD in Diabetes</li> </ul>	<ul style="list-style-type: none"> <li>Case Study 17: Adult Type 2 DM: Transition to Insulin. Section I (Q 1-9), Section II (Q 10,11), Section III (Q 12-13) (Due 3/22)</li> </ul>
3/14-20	<b>SPRING BREAK</b>	
3/22	Text: <ul style="list-style-type: none"> <li>CH 15: Diseases of the Lower GI Tract</li> </ul>	<p style="text-align: center;"><b>Weekly Quiz #8</b> Ch. 15</p> Assignment: <ul style="list-style-type: none"> <li>Case Study 11: IBD: Crohn's Disease Section I (Q 1-10), Section II –IV, V(Q. 21-24)Section VI (Q.27-30) (Due 3/29)</li> </ul>
3/24	Text: <ul style="list-style-type: none"> <li>CH 14: Diseases of the Upper GI tract</li> </ul>	<p style="text-align: center;">Ch. 14 Journal Article Discussion-Group #9</p> Assignment: <ul style="list-style-type: none"> <li>Case Study 7: GERD. Section I (Q 1-9), Section II (Q 10), Section III: (Q: 11, 12, 14, 15) (Due 3/31)</li> </ul>
3/29	Text: <ul style="list-style-type: none"> <li>CH 19: Diseases of the Hematological System</li> </ul>	<p style="text-align: center;"><b>Weekly Quiz #9</b> Ch. 19</p> Assignments: <ul style="list-style-type: none"> <li>Case Study 22: Folate and Vitamin B12 Deficiencies Section I (Q 1-11), Section II (Q 12,13) (Due: 4/5)</li> </ul>
3/31	Discussion: <ul style="list-style-type: none"> <li>Review concepts for Exam 3</li> <li>Review Case Studies</li> </ul>	Journal Article Discussion-Group #10
4/5	<b>EXAM: 3</b>	
4/7	Text: <ul style="list-style-type: none"> <li>CH 9. Cellular &amp; Physiological Response to Injury</li> <li>CH 22: Metabolic Stress and the Critically Ill</li> </ul>	<p style="text-align: center;">Ch. 9(p.157-180) NCP: The Role of Nutrition in the Treatment &amp; Prevention of Pressure Ulcers Journal Article Discussion-Group #11</p>
4/12	Text: <ul style="list-style-type: none"> <li>CH. 22: Metabolic Stress and the Critically Ill</li> </ul>	<p style="text-align: center;">Weekly Quiz #10 NCP: Pros &amp; Cons of Feeding the Septic ICU Patient</p> Assignments: <ul style="list-style-type: none"> <li>Case Study 29 (Met Stress/Nutr Support): Section I &amp; Section II, Section III (Q: 8-13, 16-20, Sections IV &amp; V, VI (Q23-24) (Due: 4/19)</li> </ul>
4/14	Text:	<p style="text-align: center;">Ch. 23: Journal Article Discussion-Group #12</p>

	<ul style="list-style-type: none"> <li>CH 23: Neoplastic Disease (MNT for Oncology)</li> </ul>	
4/19	Text: <ul style="list-style-type: none"> <li>CH 26: Metabolic Disorders</li> </ul>	Weekly Quiz #11
4/21	Text: <ul style="list-style-type: none"> <li>CH 25: Diseases of the Musculoskeletal System</li> </ul>	Ch. 25 Journal Article Discussion-Group #13

4/26	Text: <ul style="list-style-type: none"> <li>CH 11: Pharmacology</li> </ul>	Ch. 11 Weekly Quiz #12
4/28	Discussion: <ul style="list-style-type: none"> <li>Review of Clinical Concepts and the Role of the RD in Medical Nutrition Therapy</li> <li>Review Concepts for Final Exam</li> <li>Review Case Studies</li> </ul>	
5/3	Comprehensive Final Exam	

<b>Course Expectations</b>
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**INDIVIDUAL AND GROUP WORK guidelines:**

Assignments, examinations, and other assessments in this course include both individual and group work. UNLESS otherwise stated in the instructions for the individual assignment or examination, ALL assigned work will be INDIVIDUAL work.

"Individual work" means that the student may not obtain assistance from any other person in completion of the assignment or examination. Individual assignments or examinations will specify the types of resources that may be used. The following descriptors specify those resources allowable for completing an assignment or examination.

- "Writing Center assistance allowed" means that an individual written assignment may be taken to the WSU Writing Center for guidance in improving the student's writing skills. The Writing Center staff will not assist the student in researching the paper, but may provide feedback to the student on areas needing improvement.
- "Closed book" means that the student may only use the resources made available to the student by the instructor within that assignment, and includes a prohibition against use of computers, PDAs, internet access, notes, or other sources.

- "Open book" means that the student may use the assigned textbook, notes taken in class, class handouts, and similar resources in completing the assignment or examination. "Open book" does not include use of e-resources.
- "e-resources allowed" means that students may use computers, PDAs, internet access or other forms of electronic resources, but does not include consulting with another person in the completion of the work.

"Group Work" means that the student is expected to complete the specified portion of the assignment or examination in collaboration with other members of his or her assigned group. It is expected that all students will participate fully in the group activities. Assessment of group work may, as the instructor's prerogative, include assessment of the degree of each member's contribution to the total group effort, which may be made by the instructor and/or peers.

### ***Academic Honesty, Conduct, and Behavior***

**Students are reminded that they must adhere to the policies agreed to in writing when entering the Program in Nutrition and Exercise Physiology. These are detailed in the Student Handbook under CODE OF PROFESSIONALISM.** Departures from the CODE may have serious consequences for academic standing in the class and/or continued enrollment in the Program in Nutrition and Exercise Physiology. Sanctions for violation of the CODE will depend upon the seriousness of the infraction. Furthermore, depending on the nature of the CODE violation, students will be referred to the Student Progress Committee, Director of Student Services or the WSU Office of Student conduct ([www.conduct.wsu.edu](http://www.conduct.wsu.edu)). Any CODE violations that constitute an alleged violation in Washington State University's academic integrity standards will be handled directly by the Office of Student Conduct as set forth in "Procedure for academic integrity violations" (WAC 504-26-404). For detailed information on Academic Dishonesty definitions and procedures, see: <http://www.conduct.wsu.edu/default.asp?PageID=343>. To learn more about what might be considered plagiarism, please see: <http://www.wsulibs.wsu.edu/plagiarism/main.html>.

Academic integrity will be strongly enforced in this course. Any student caught cheating on any assignment will be given an F for the course and will be referred to the Office of Student Conduct.

### ***Course Evaluations***

Student evaluations of courses/course modules and faculty effectiveness are a valuable and important component of the College's commitment to provide quality learning experiences and contribute to our efforts to assure that students achieve the objectives of our professional degree program. Thus, all evaluations are given serious consideration as part of the assessment process and are read first by the Department Chair before they are processed, analyzed, and given to the faculty. Because the most effective way to impact positive changes is through constructive comments, we encourage you to provide feedback as you would wish to receive it. This will allow the faculty member to focus on improvements or affirm students' perspective on effective elements of the course.

### ***Students with Disabilities Statement***

All students requesting reasonable accommodation must meet with the instructor prior to or during the first week of the course to review all proposed accommodations in relation to course content and

requirements. Please note that written evaluations can be accommodated but performance evaluations are considered analogous to job skill performance, therefore expectations will not be adjusted.

### **WSU Spokane Disabilities Language**

**Students with Disabilities:** Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, please contact Liz West, Assistant Director of Student Affairs, in Academic Center 130 ([weste@wsu.edu](mailto:weste@wsu.edu) or 509-358-7534). Read more:

<http://spokane.wsu.edu/students/current/studentaffairs/disabilitystatement.html#ixzz0wEGRXYuU>

### ***Campus Safety***

The WSU Campus Safety Plan, which can be found at <http://safetyplan.wsu.edu>, contains a comprehensive listing of university policies, procedures, statistics, and information relating to campus safety, emergency management, and the health and welfare of the campus community. Please visit this web site as well as the University emergency management web site at <http://oem.wsu.edu/Emergencies> to become familiar with the campus safety and emergency information provided. Everyone should also become familiar with the WSU ALERT site (<http://alert.wsu.edu>) where information about emergencies and other issues affecting WSU will be found. This site also provides information on the communication resources WSU will use to provide warning and notification during emergencies. It should be bookmarked on computers. Finally, please go to the myWSU portal at <http://my.wsu.edu> and register your emergency contact information for the Crisis Communication System (CCS). Enter your network ID and password and you will be taken to the myWSU main webpage. Look for the Emergency Notification box on the right side of the page and click on Register to be taken to the registration page where you can enter your cell, landline, and email contact information.

### ***Expectations of students***

**Students will be expected to:**

1. Bring your calculator to class.
2. Attendance in class is required unless prior arrangements have been discussed with the instructor.
3. Participation and engagement: Your participation will be evaluated on the basis of the following: class attendance, tardiness/leaving early, active engagement in class including participating in case study discussions, raising and responding to questions, completion of in-class activities, worksheets, quizzes, exams, etc., contribution to group discussions.
4. **Methodology:** Lectures, group discussions, multimedia presentations, practical problem solving in the class/lecture.
5. Class may be held at other than scheduled times and at other locations. You are expected to be in class when this occurs. You will be given at least 1 week notice. All assignments are expected to be original work with all references cited. Unless specified otherwise, all assignments should be typed, with differentiation in format from the questions compared to the answers. Please number your pages. Please proof-read your assignments before you hand them in. Points will be deducted for assignments that have not been proof-read. You may use lay literature like

Wikipedia for initial background reading, but please do not use it or cite it as a primary reference in your work. Grades for late assignments are reduced 10% for every late day.

6. Case Studies: Students will complete 14 case studies throughout the semester. You will receive points for effort and completeness. You will be given the answer keys to these case studies after the day that it is due so that you can self-grade them. Compare and contrast your answers to the answer key. If you miss an answer, change your answer according to the key.
7. End-of-Chapter questions (EOCs): You will complete throughout the semester. You will receive points for effort and completeness. You will be given the answer keys to these questions so that you can self-grade them. Compare and contrast your answers to the answer key. If you miss an answer, change your answer according to the key.
8. Tutorials: There are three tutorials included in this course: 1) Enteral Nutrition, 2) Parenteral Nutrition, 3) Diabetes. Please complete the assigned tutorial by navigating through the tabs at the top and on the left column. You will need to complete the quiz for each tutorial.
9. Evidence Analysis Library (EAL): Evidence-based Practice for the RD; Assignment\* TBD
10. Grades for late assignments are reduced 10% for every late day
11. Exams: You will have 3 exams this semester which covers the previously covered material. The final exam is comprehensive. The exams will cover the lectures, power points, case studies, end-of-chapter questions (EOCs), and any other points of discussion or work in this course.
12. As part of your professional development, you are expected to attend GSDA & WSAND meetings.

### **Course Grading Criteria and Grading Scale**

**Exams: 3 exams @ 100 points (30%)**

**Comprehensive Exams: 200 points (20%)**

**Weekly Quizzes: 50 points (5%)**

**Assignments: 75 point (7.5%)**

EAL Assignment: 10 points

Malnutrition Assignment: 25 points

TF Practice Questions: 20 points

TPN Practice Questions: 20 points

**Journal Article Project: 100 points (10%)**

**Case Studies: 225 points (23%)**

**Participation Points: 50 points (5%)**

#### **Grading Scale:**

A = 93-100%

A- = 90-92.9%

B+ = 87-89.9%

B = 83-86.9%

B- = 80-82.9%

C+ = 77-79.9%

C = 73-76.9%

C- = 70-72.9%

F ≤ 69.9

**This course covers the following ACEND Eligibility Requirements and Accreditation Standards (ERAS):**

<b>ERAS Number &amp; Description</b>	
Scientific & Evidence Base of Practice: Integration of scientific information and research into practice.	
KRD 1.1	The curriculum must reflect the scientific basis of the dietetics profession and must include research methodology, interpretation of research literature and integration of research principles into evidence-based practice. Examples of evidence-based guidelines and protocols include the ADA Evidence Analysis Library and Evidence-based Nutrition Practice Guidelines, The Cochrane Data base of Systematic Reviews and the U.S. Department of health and Human Services, Agency for Healthcare Research and Quality, National Guideline Clearing house Web sites
KRD 3.1	The curriculum must reflect the principles of Medical Nutrition Therapy and the practice of the nutrition care process, including principles and methods of assessment, diagnosis, identification and implementation of interventions and strategies for monitoring and evaluation.
Support Knowledge: Knowledge underlying the requirements above.	
KRD 5.2	The physical and biological science foundation of the dietetics profession must be evident in the curriculum. Course content must include organic chemistry, biochemistry, physiology, genetics, microbiology, pharmacology, statistics, nutrient metabolism and nutrition across the lifespan.

**This course is a secondary course for covering the following American College of Sports Medicine's Registered Clinical Exercise Physiologist® Knowledge, Skills, and Abilities (KSAs).**

<b>KSA Number</b>	<b>KSA Description</b>
<b>PULMONARY (e.g., OBSTRUCTIVE AND RESTRICTIVE LUNG DISEASES): EXERCISE PHYSIOLOGY AND RELATED EXERCISE SCIENCE</b>	
3.1.3	Explain how scheduling of exercise relative to meals can affect dyspnea.
<b>ORTHOPEDIC/MUSCULOSKELETAL: PATHOPHYSIOLOGY AND RISK FACTORS</b>	
5.2.1	Describe the epidemiology, pathophysiology, risk factors, and key clinical findings of orthopedic/musculoskeletal diseases.
<b>ORTHOPEDIC/MUSCULOSKELETAL: MEDICAL AND SURGICAL MANAGEMENT</b>	
5.6.1	List the commonly used drugs (generic and brand names) in the treatment of individuals with orthopedic/musculoskeletal diseases, and explain the indications, mechanisms of actions, major side effects, and the effects on the exercising individual.

5.6.3	Apply key recommendations of current U.S. clinical practice guidelines (e.g., NIH, National Osteoporosis Foundation, Arthritis Foundation) for the prevention, treatment, and management of orthopedic/musculoskeletal diseases.
5.6.4	Explain how treatments for orthopedic/musculoskeletal disease may affect the rate of progression of disease.
<b>NEUROMUSCULAR: PATHOPHYSIOLOGY AND RISK FACTORS</b>	
6.2.1	Describe the epidemiology, pathophysiology, risk factors, and key clinical findings of neuromuscular diseases.
<b>NEUROMUSCULAR: MEDICAL AND SURGICAL MANAGEMENT</b>	
6.6.1	Explain the common medical and surgical treatments of neuromuscular diseases.
6.6.2	List the commonly used drugs (generic and brand names) in the treatment of individuals with neuromuscular disease, and explain the indications, mechanisms of actions, major side effects, and the effects on the exercising individual.
6.6.3	Apply key recommendations of current U.S. clinical practice guidelines (e.g., NIH) for the prevention, treatment, and management of neuromuscular diseases.
6.6.4	Explain how treatments for neuromuscular disease may affect the rate of progression of disease.
<b>NEOPLASTIC, IMMUNOLOGIC, AND HEMATOLOGIC: PATHOPHYSIOLOGY AND RISK FACTORS</b>	
7.2.1	Describe the epidemiology, pathophysiology, risk factors, and key clinical findings of NIH diseases.
<b>NEOPLASTIC, IMMUNOLOGIC, AND HEMATOLOGIC: HEALTH APPRAISAL, FITNESS, AND CLINICAL EXERCISE TESTING</b>	
7.3.2	Describe common techniques and tests used to diagnose NIH diseases.
7.3.3	Conduct and interpret appropriate exercise testing methods for individuals with NIH diseases.
<b>NEOPLASTIC, IMMUNOLOGIC, AND HEMATOLOGIC: MEDICAL AND SURGICAL MANAGEMENT</b>	
7.6.1	List the commonly used drugs (generic and brand names) in the treatment of individuals with NIH disease, and explain the indications, mechanisms of actions, major side effects, and the effects on the exercising individual.
7.6.2	Apply key recommendations of current U.S. clinical practice guidelines (e.g., ACS, NIH) for the prevention, treatment, and management of NIH diseases.
7.6.3	Explain the common medical and surgical treatments of NIH diseases.
7.6.4	Explain how treatments for NIH disease may affect the rate of progression of disease.